



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

national Association for Promoting Quaternions and Allied Mathematics. He says:

"We have before us the ordinary algebra founded on the straight line, or as Hamilton at one time preferred to say, on pure time. We have next the algebra of the complex quantity, founded on the plane; it is a portion only of plane algebra, for what is treated is the circular part only; the hyperbolic counterpart is almost wholly neglected. For instance, in the solution of the quadratic and the cubic equation, the roots are real and impossible so far as line algebra is concerned, but hyperbolic or circular so far as plane algebra is concerned. This plane algebra is a logical generalization of line algebra, and every theorem in the latter has its generalized form in the former.

"There is a common belief that the algebra of the circular complex quantity rounds off and completes the domain of algebra, and we are furnished with a so-called reduction of every algebraic expression to the form of the circular complex quantity. But that argument is entirely fallacious; for in the plane there is a hyperbolic vector, and none of these can be reduced to the form mentioned. This matter was discussed before the American Institute of Electrical Engineers (*Transactions*, vol. 14, p. 163), the orthodox doctrine being championed by Mr. Steinmetz, and the opposite by myself. My argument was derived from the investigation for the discharge of an electrical condenser; when the discharge is alternating the analysis leads to circular complex quantities and when it is not alternating to hyperbolic complex quantities which are analogous in every particular to the circular.

"Then we have before us three forms of space-analysis: the scalar, founded by Descartes, which makes use of axes, but provides no explicit notation for directed quantities whether line or angle; the quaternionic, founded by Hamilton, which is characterized by a notation for versors or angles in space; the vectorial, founded by Grassmann, which is built on vector-units and compound units derived from them. For the past half century the masters of these several forms have been engaged in a triangular fight; much has been written on vectors *versus* quaternions; and we have heard of a Thirty Years' War between one who could bend the bow of Hamilton and one equally skilled in the weapon of Descartes. It will surely be admitted that each branch contains part of the truth; it is therefore highly probable that none of them contains the whole truth, and that each has a part of the truth which the others have not. It has for long seemed to me that what is wanted is an analysis which will harmonize all three, and present itself as the space-generalization of algebra. As to this conception of the oneness of the algebra of space, I may quote Sylvester's declaration that he would as soon acknowledge a plurality of gods as a plurality of algebras. Likewise, Gibbs at the close of his address to the Mathematics Section of the American Association, said we begin with multiple algebras and end with multiple algebra."

The pamphlet before us contains Professor MacFarlane's solution of the problem which consists mainly in a unification and generalization of the principles of the algebra of space. K

THE UNCAUSED BEING AND THE CRITERION OF TRUTH. By E. Z. Derr, M. D.
Boston: Sherman, French & Co., 1911. Pp. 110. Price \$1.00 net.

This interesting book takes issue with pragmatism and criticizes Prof.

William James. The author says in the preface: "This work was completed before the death of William James, professor of philosophy in Harvard University, and the criticisms of his pluralistic philosophy stand exactly as then written, without additions or alterations of any kind. As a man, Professor James was beloved by all who knew him, and his benevolent nature and open-mindedness endeared him to many whose philosophical views differed radically from his own. But esteem for the man should not disarm criticism of the writings he has laid before the world. In his last work, *A Pluralistic Universe*, Professor James, in declaring for a finite God, strikes at the very foundation of monotheism. Polytheism, with all its absurdities, is the logical outcome of such a philosophy. Professor James seems to have been so weighed down by the presence of so much suffering in the world that he could not reconcile it with the existence of an Omnipotent Deity."

To Mr. Derr the criterion of truth is the "uncaused being," and here the author may be criticized for the confusion of thought which naturally originates by regarding the uncaused being, whoever that may be, as somewhat beyond the comprehension of man. The very idea is unclear, and yet in his propositions on page 51 Dr. Derr says, "If anything exists an Uncaused Being exists." He adopts the usual agnostic argument based upon the principle that the whole is greater than any of its parts, and concludes from it that the uncaused can not be subjected to analysis or comprehended by that which itself has caused.

While Mr. Derr's positive propositions are open to criticism, his critical comments contain many good observations, among which we call attention to his remarks on the untenability of the current conception of ether as a continuum. He concludes his book on this current hypothesis with his verdict as follows:

"The theory of an ethereal continuum is therefore worthless—worthless by reason of its inconsistency and fundamental incoherence; worthless as absolutely without scientific evidence; worthless as establishing agnosticism between sense perception and *a priori* conceptions; worthless, therefore, in its philosophical implications, for, in predicating absolute infinitude of the ether, it lends itself to that system of thought which identifies the material universe with the ultimate essence of uncaused being."

κ